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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/941,692	08/30/2001	Yotaro Hatamura	2001_1227	7051

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EXAMINER	
OLSEN, ALLAN W	
ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 09/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/941,692	Applicant(s) HATAMURA ET AL.	
	Examiner Allan W. Olsen	Art Unit 1763	

-- The MAILING DATE of this c mmunication appears on the cover sheet with the c rrespondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *50-77* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *50-77* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

Claim 52 is objected to because of the following informalities: "squire-shaped" should read --square-shaped--. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 50-63 and 68-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-257781 (hereinafter, Hatakeyama '781) in view of U.S. Patent 5,303,100 issued to Nakayama et al. (hereinafter, Nakayama).

Hatakeyama '781 teaches a method of using a fast atom beam to pattern a surface. Hatakeyama '781 teaches placing a micro dimensioned shielding mask on, or in close proximity to, the surface to be patterned. Hatakeyama '781 teaches the mask may comprise a plurality of fine wire or rods. Hatakeyama '781 teaches that the method can be used to reduce the friction between a magnetic disk and magnetic head. Hatakeyama '781 teaches that fast atom beam may impinge at an angle normal to the surface. Hatakeyama '781 teaches the contouring is

very anisotropic due to highly directional nature of the particle beam. Hatakeyama '781 teaches using a mask with a plurality of square (i.e., rhombus-shaped) openings arranged in a matrix-type array. Hatakeyama '781 teaches that the fast atom beam source and the surface to be contoured can be rotated with respect to one another. Hatakeyama '781 teaches that the surface to be contoured can comprise an electrically insulating layer such as SiO2 or may be nickel plated. See paragraphs: 0002, 0010, 0024, 0034, 0044, 0047, 0050, 0074, 0076, 0078.

Hatakeyama '781 is directed to the method of FAB in general and while Hatakeyama teaches that the FAB bombardment method may be used to contour a slider's surface, he does not provide the specific details of such a process. For example, Hatakeyama does not teach if the substrate upon which the slider is fabricated is contoured and then a magnetic film layer and a protective film layer are formed, or if the contouring is performed on a completely fabricated slider such that the contouring beam of atoms impinges upon the protective layer of the fabricated slider.

Nakayama teaches contouring the surface of a protective layer overlying a magnetic member. Nakayama teaches contouring the surface of a substrate upon which a magnetic film layer and a protective layer are subsequently formed.

It would have been obvious to one skilled in the art to use Hatakeyama's method of contouring the surface of a magnetic slider member, by either contouring the underlying substrate before forming the magnetic film and protective film layers or by contouring the protective film of a completely fabricated slider because Nakayama teaches that both methodologies provide the desired result of reducing friction between two sliding members.

Claims 63-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Hatakeyama '781 and Nakayama, as applied to claim 50 above, and further in view of in view of JP 08-238426 (hereinafter, Hatakeyama '426).

Hatakeyama '781 and Nakayama do not teach using a micro-particle shielding mask.

Hatakeyama '426 teaches using a micro-particle shielding mask.

It would have been obvious to one skilled in the art to use a micro-particle shielding mask because Hatakeyama '426 teaches that this enables one to achieve excellent distribution of the masking agent across the surface to be contoured.

Claims 75 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatakeyama '781 in view of U.S. Patent 3,947,887 issued to Platter.

Hatakeyama '781 teaches a method of using a fast atom beam to pattern a surface. Hatakeyama '781 teaches placing a micro dimensioned shielding mask on, or in close proximity to, the surface to be patterned. Hatakeyama '781 teaches that the method can be used to reduce the friction between a magnetic disk and magnetic head. Hatakeyama '781 teaches that fast atom beam may impinge at an angle normal to the surface. Hatakeyama '781 teaches the contouring is very anisotropic due to highly directional nature of the particle beam. See paragraphs: 0002, 0010, 0024, 0034, 0044, 0047, 0050, 0074, 0076, 0078.

Hatakeyama '781 does not teach forming micro-cavity or micro-protrusion in or on the surface of a curved slider.

Platter teaches a magnetic head with a curved surface.

It would have been obvious to one skilled in the art to apply Hatakeyama's FAB method to the magnetic head of Platter because Platters curved magnetic head because the curvature of Platter's magnetic head offers consistency of the separation between the tape and head when the tape is accelerated in a reverse direction and the micro-cavity or micro-protrusions of Hatakeyama would reduce the friction between the tape and head.

Claim 77 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hatakeyama '781 and Platter, as applied to claim 75 above, and further in view of Nakayama.

Hatakeyama '781 and Platter doe not teach forming a protective film layer on the micro-cavities or micro-protrusions.

Nakayama teaches forming a protective film layer over the a contoured surface of a slider.

It would have been obvious to one skilled in the art to form a protective film over the contoured surface of the slider because Nakayama teaches that the standard practice of providing a protective film layer can be carried out after the surface of the slider has been provided with a friction reducing texture.

Response to Arguments

Applicant's arguments filed July 14, 2003 have been fully considered. The above rejections address each element of the Applicant's remarks.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 703-306-9075. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Mills, can be reached on 703-308-1633.

The general fax numbers for TC1700 are 703-872-9310 (non-after finals) and 703-872-9311(after-final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Allan Olsen, Ph.D.
September 14, 2003